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COMMUNITY DISCUSSION PAPER No. 1

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# Is Soil Conservation the Answer to the Farm Problem?



An Outline and Selected Information



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL ADJUSTMENT ADMINISTRATION



## HOW FERTILITY IS LOST

1. In what ways is soil fertility lost?
2. Which destroys fertility faster—continuous cropping or erosion?
3. Which mineral plant food is apt to be first exhausted in the soils?
4. How does erosion work destruction on the farm?
5. How does erosion finally injure lowland farms?

## II. CAN THE FARMER HANDLE THE PROBLEM UNAIDED?

## THE CAUSES OF SOIL DECLINE

1. Who is to blame for the damage done our soils?
2. What parts did the following play in the decline of our soils?
  - a. Land hunger.
  - b. Public gifts of land without obligation.
  - c. National habit of exploiting all resources.
  - d. Land speculation.
  - e. Tenancy.
  - f. War patriotism.
3. Is it true that low farm prices over a period of years have forced soil mining? Why and how?

## WHAT NEEDS TO BE DONE?

1. Do you think the adjustment programs of 1933-35 were conservation programs?
2. What steps do you think must be taken to end soil fertility losses?

## WHAT PREVENTS THE FARMER FROM ACTING?

1. Do you think soil conservation can be brought about through education alone?
2. Is it always to the farmer's own best interest to conserve the soil?
3. Are farmers' short-time interests always the same as their long-time interests?
4. What effect will low prices for farm products have on soil conservation in this community?
5. Do you think the farmers of this community, without any public financial aid, will take most of the necessary steps to stop soil fertility losses during the next 5 years?

PART 2. IS THE GOVERNMENT JUSTIFIED IN HELPING FARMERS  
SAVE THE SOIL?

## III. WHAT HISTORY TEACHES.

1. Do you think the United States can lose half or more of its soil and its farms, and still survive as a great power?
2. Have older nations had the same problem of soil exhaustion that seems to face the United States?
3. What is the cycle of erosion through which many countries are said to have gone in the past?



4. What effect has soil erosion had on life in China?
5. Why are some of the deserts of Asia and Africa believed to have been at one time rich agricultural countries?
6. How is soil erosion said to have destroyed the Mayan civilization in Central America?
7. What other countries in the world today are faced with erosion problems?
8. Why are the British Isles and northern Europe less troubled with erosion than the United States?
9. What do you think will happen in the United States if losses of fertility and soil are not ended?

#### IV. HOW MUCH CAN SOIL CONSERVATION PROGRAMS HELP?

##### THE BEGINNING OF CONSERVATION

1. When was public interest in America first aroused to the need of conservation of natural resources?
2. What conservation measures were adopted by the United States prior to 1933?
3. What indications are there that the American public is now becoming aroused to the need for soil conservation?
4. What steps toward soil conservation have been taken recently in the United States?

##### THE SOIL CONSERVATION SERVICE

1. What are the objectives of the Soil Conservation Service?
2. How is the Soil Conservation Service tackling the job?
3. What Soil Conservation Service projects have you observed?

##### THE AGRICULTURAL CONSERVATION PROGRAMS OF A. A. A.

1. What are the objectives of the Soil Conservation and Domestic Allotment Act of 1936?
2. Is this a production-control program "with false whiskers"?
3. If the farmers of this community loyally cooperate in this new A. A. A. program, do you think it will help end fertility and soil losses here? If not, why not?
4. Do you think this present agricultural conservation program will help much in maintaining farm income?
5. Do you think this farm program will help bring about parity between farm prices and store prices?
6. Granted the Soil Conservation Service and A. A. A. conservation programs succeed, what other serious farm problems do you think will remain untouched and unsolved?

##### THE PRICE OF NEGLECT

1. What of America's future?
2. Should the Nation share the cost, or ask 6 million financially distressed farm families to bear the load?



# IS SOIL CONSERVATION THE ANSWER TO THE FARM PROBLEM?

## PART 1. SOIL LOSSES AND THEIR CAUSES

### I. How SERIOUS Is SOIL EROSION?

#### THE DESTRUCTION TO DATE

Erosion has destroyed 50 million acres of land in America to date. That, roughly, is five times the total cultivated area of England. Another 50 million acres are seriously damaged. In addition, there are now in cultivation 100 million acres impaired by erosion and an additional 100 million acres on which erosion has begun.

The soil destruction which impoverished China and India and which laid waste to Mesopotamia and northern Africa required thousands of years. Young, exuberant America in three short centuries has gone far along the same road of ruin. After only 100 years of real extensive cultivation we have either destroyed, seriously damaged, or threatened with destruction an area equal to all the land from which we normally harvest crops.

We are rich; but how rich? How much longer can we mine the soil and remain solvent? We have a little more than 1 billion acres in farm lands. About one-third is normally harvested in crops. An area that large is already gone or on the way.

Nature requires from 400 to 1,000 years to form 1 inch of topsoil. On much of our land the topsoil—the farm—is only 6 to 7 inches deep. Some of our land is losing an inch of topsoil in a year. The annual soil losses by washing and blowing, estimated at 3 billion tons, would cover about 1,800,000 acres an inch deep.

The Soil Conservation Service estimates the loss to America at 400 million dollars per year. It is also predicted that the entire topsoil in many parts of the country will have disappeared entirely within 60 more years unless the destruction is checked. In fertile, level Illinois, boring tests made 10 years or more ago by Arthur J. Mason indicated that 4 inches of rich topsoil, or half the whole, had vanished in a matter of 50 years.

Wind erosion alone has destroyed 5 million acres since May 1934. Sixty million more acres are in process of devastation.

#### HOW FERTILITY IS LOST

Soil fertility may be lost in several ways, most important of which are by water and wind erosion, crop removal, and leaching.

Continuous cropping of the land without rotation is a serious drain on fertility, yet these losses are small compared to the loss of fertility through erosion. The National Resources Board reports that the yearly loss of fertility through erosion and leaching is seven times the amount used by all crops in plant growth. Erosion and leaching account for two-fifths of the annual loss of humus. Crops account for little more than one-fourth the yearly disappearance of humus.

#### *Plant Food Losses:*

The mineral plant foods most limited in the soil, and which sooner or later have to be restored, are nitrogen and phosphorus. Supplies of nitrogen, natural or manufactured, are plentiful. Legumes have



the power of fixing nitrogen out of the air and storing same in the root nodules. Although extremely important to plant growth, there is small danger of a nitrogen famine.

Phosphorus, on the other hand, is limited in supply, and unfortunately, a greater proportion of phosphorus is lost through erosion than any other important plant food element. Our phosphorus fertilizers now come chiefly from rock deposits in Tennessee and Florida, but eventually must come from our western deposits of this mineral. Years ago a noted authority stated that "aside from coal and iron the western phosphates are the most precious mineral heritage of the Nation."

Upland or lowland, sooner or later we must come to terms with phosphorus. For the United States as a whole it is estimated that more than half the original phosphorus is gone from surface soils. It took less than 100 years to accomplish this destruction. Long before another century passes we may have crop-production control through a phosphorus shortage.

#### *Soil Losses:*

Erosion, it has been pointed out, is the chief soil robber. Not content with taking the fertility many times as fast as plants remove it, erosion takes the soil itself. Seldom noticed in the early stages, it moves faster and faster. It is like compound interest, the longer it goes the faster it grows.

Gully erosion is easy to see, but sheet erosion may not be detected until whole surfaces are scalped. Millions of acres have been abandoned because of hopeless gullies, yet a far larger area is on the way to ruin because of the unseen ravages of sheet erosion. It is estimated that 45 percent of the land area of the United States has been damaged by this form of destruction.

Not only does erosion take the soil and its fertility, but the rapid run-off of water following rains lowers the level of the water table and intensifies drouth.

An Oklahoma 5-year investigation shows that the run-off of water from a field continuously cropped in cotton was 11 times as great as from land in Bermuda grass. The soil loss was 670 times greater! Missouri observations over a 14-year period show that even land in a corn-wheat, clover rotation lost nine times as much soil as land in bluegrass. These are typical examples.

For a time the overflow deposits of rich soil on lowland farms may build fertility there at the expense of upland neighbors, but finally the deposits become sterile subsoil mud which decreases yields. Many farmers today are terracing against their neighbors' poorer farms.

The work of destruction does not stop with the farm. Devastating floods, most authorities agree, are due to watersheds denuded of grass and trees. The streams which flowed clear in pioneer days are now uniformly muddy, full of the soil for which men paid cash in the form of farms.

## II. CAN THE FARMER HANDLE THE PROBLEM UNAIDED?

### THE CAUSES OF SOIL DECLINE

In this tragedy of waste it is natural to look for the villain. He is hard to single out because he is all of us.



Perhaps the first chapter in soil waste began with our land hunger, our praiseworthy ambition to be independent. This pursuit of the "American dream" of well-being for the common man, coupled with an utter lack of a national land policy, has resulted in soil exploitation. When William the Conqueror took England he parceled out the land to the Norman nobility with strict accountability to the Crown. The sense of responsibility of the English landowners to the public persists to this day. When we gave our public lands to private citizens we attached no strings except the obligation to pay taxes. Few American landowners have had or today have any great sense of public trust in their ownership of the land.

### *Resources Exploited.*

With youthful enthusiasm we swept over the continent with our land settlements. The land seemed boundless, the soil inexhaustible. Land was cheap, and if one farm was worn out it could easily be replaced by another, a newer one. Without the similar experiences of older peoples covering thousands of years to guide us, we did not know the price nature exacts for disturbing her balance of forces. Thus we started our national career of exploitation. The fault cannot be charged to farmers as a class. Exploitation of all natural resources has been the rule in America.

Land speculation has hastened erosion. Land speculators are not soil conservers, and we have been a nation of land speculators. Too many farmers have looked outward, away from the farm to another farm or to town or city instead of toward the land—their own land.

Crop speculation has accomplished land speculation. The two have powerfully stimulated tenancy and absentee ownership. Tenancy does not encourage soil conservation, especially where the length of the lease is short, as in this country.

All these forces working together, speeded up by the partiotic war urge to raise more wheat and unchecked by any national land policy, expanded farming far into the semiarid grass lands of the Great Plains. Gradually the ranches were conquered by the farms, and the cattle and sheep men were pushed farther and farther into dry country. Inevitably the range became overstocked. Overtaxed ranges have led to erosion.

### *Low Prices Forced Soil Mining.*

Greatest cause of the decline of the soil, with its threat to our national future, has been the economic pressure which has forced men to mine the soil to make both ends meet. From the Civil War to the end of the century the farmer gave the world the cheapest food it had ever known. Soil wealth which had been ages in the making was the foundation of our foreign farm export trade. We sold or gave away soil fertility with our cotton, wheat, tobacco, and pork.

While farmers supplied America and the world cheap food and fiber, protective tariffs and other industrial devices kept the prices of manufactured goods high. The buying power of farm products was usually low. That forced greater and greater production to maintain living standards.

The pressure increased greatly after the war. We failed to recognize that our swift change from debtor to creditor nation called for lower tariffs to maintain foreign trade. Our farm export market was destroyed but we bolstered up that market by making disastrous



foreign loans. In the meantime, we had expanded our farm lands during the war, had lost a home market for the products of 30,000,000 acres by shifting from horses and mules to autos and tractors, and further restricted the home market by shutting off most immigration. The birth rate, too, was declining.

Farm prices after 1920 were chronically below parity with other prices. To make matters worse, war prosperity had boomed land prices and created a too heavy debt load on farmers. When foreign loans stopped in 1928-29, foreign farm exports declined, surpluses accumulated. The combined pressure brought a complete break in 1932.

The first long chapter in American agriculture, a chapter of exploitation, came to an end.

#### WHAT NEEDS TO BE DONE?

The first big attempt to end the waste of soil and human resources began in 1933 when more than 3,000,000 farmers united under the Agricultural Adjustment Administration to stop wasteful production for vanished foreign markets, lift prices to a parity with industry, and to increase the acreage of conserving crops of grass and legumes and pasture. The adjustment programs were a step toward conservation.

However the job may be done, or who pays for it, authorities are in general agreement that real soil conservation demands a shift to more grass, legumes, and pasture, restoration of trees wherever practicable, and wiser cropping practices.

Terracing and contouring will often be needed, particularly where soil losses are further advanced. It seems clear, however, that vegetation will be used more and more to control erosion. Strip cropping may become the rule over large areas.

The badly damaged land should be removed entirely from production, for its own sake and that of the people living on it, as well as for protection of the surrounding lands.

Steep slopes will have to be taken out of cultivation and planted to grass and trees and the practice of planting row crops along contour lines will be used more extensively.

These are some of the conservation methods which must be used. As research progresses new techniques will be devised.

#### WHAT PREVENTS THE FARMER FROM ACTING?

The job of conservation is divided among six million farmers. Can they and will they take the necessary measures? If research points the way and a strong educational effort is made, is this enough?

More research into the nature of soil and fertility losses and means for their stoppage unquestionably are needed. Conservation programs must be based on the facts disclosed. The public must be aroused to the urgent need for action and informed of the necessary measures. Many farmers will respond to such appeals, especially those who own the land they farm.

To be really effective, however, conservation requires complete cooperation. Moreover, this cooperation must come within a limited period of years, because erosion is increasing and spreading rapidly. Will farmers act while there is still time?



*Private versus Public Interest.*

This raises the questions of whether conservation of soil is to the best interests of the farmer, and whether he can afford it. Our society is based on private property. Our economic philosophy declares that private owners, each acting for his own best interests, will achieve the best interests of all. Yet the individual farmer often finds that his own best interests demand tilling the soil to the limit. Debts and interest and taxes have to be met. Soil conservation does not enter the reckoning of creditor and tax collector. Ordinary living and farm upkeep expenses must be met. Money talks. However much he may want to engage in the temperate farming that spells conservation, the farmer finds himself compelled by circumstance to exploit the land to make both ends meet.

The task, too, is complicated by the fact that nearly half our farms are operated by tenants. In the areas of greatest erosion more than half the land is tilled by renters. Their leases are short, their moves frequent. Conservation means little to them. The greatest proportionate decline per acre in land values from 1930 to 1935 occurred on tenant-operated farms.

Undoubtedly conservation is for the best long-time interests of the farmer, but what of his short-time interests which, after all, are the most compelling? Below-parity prices literally drive him to grow all the cash crops possible. Society, alarmed for its future food and fiber supplies, may urge conservation. Oppressed by low prices for what he sells, higher prices for what he buys, the farmer finds it difficult to respond even though he knows full well the consequences to his farm, his children, and to the Nation.

This condition is not temporary; it has prevailed for many years and may continue much longer. Low prices for farm stuff, higher prices for manufactured stuff come from the fact that the farmer sells in a market of free competition while most of the rest of society operates in a market of "fair" or "restricted" competition. Farm prices are set by the law of supply and demand, freely working. Most other prices are decided by the same law, but the supply is regulated to give the desired price. To bolster the prices of manufactured goods still further, high industrial protective tariffs have been granted by the Government. As long as this condition prevails the farmer is bound to have low buying power most of the time. This is the system that has all but wrecked farming. Under it the farmer must always be too close to poverty to conserve and build the soil as the best interests of the Nation require.

**PART 2: IS THE GOVERNMENT JUSTIFIED IN HELPING FARMERS  
SAVE THE SOIL?**

**III. WHAT HISTORY TEACHES.**

"It is the first principle of political science that the state has immortal life. States have perished in the past, but political and economic science cannot take into account the possibility that our own national life will ever cease to exist. All wise plans must be based upon the hypothesis of continued national existence."—Prof. Richard T. Ely, University of Wisconsin.



Plainly the Nation must conserve its soil resources if it is to survive. Much damage has been done already, but more is threatened. Is it a national problem?

As research progresses it seems clear that we are not the first nation with an erosion problem. China has battled erosion for centuries. What happened there seems to have been repeated in more or less the same way in India, Mesopotamia, Northern Africa, and elsewhere.

### *The Cycle of Erosion.*

Some authorities claim that there is a cycle of erosion. They point out that when man began to till the soil, it was in the valleys he started. As agriculture multiplied the food supply, populations grew by leaps and bounds. The herdsmen were crowded out of the valleys into the grassy uplands. The ranges became overstocked. This broke the turf and led to erosion by both wind and water. The rich topsoil of the uplands was deposited in ever-increasing frequency and quantities on the lower lands. This helped the lowland fertility for a time. As population continued to grow, farming was extended to the grass and forest uplands. Trees were cut down to clear land for farms and to furnish lumber to build towns and cities. The uplands yielded good crops for a time, but gradually sheet erosion moved the topsoil down into the valleys. The uplands became gullied and were finally barren wastes where erosion forces moved unceasingly without resistance of grass or trees. The fertile lowland soils became overlain more and more by sterile mud from above. The higher lands were abandoned to miserable farming and meager grazing, supporting very few people. Population became confined largely to the valleyed country, where hunger pressed more and more upon the food supply. National life became a matter of bare subsistence.

### *China.*

Chester Davis, former Administrator of the Agricultural Adjustment Act, says:

\* \* \* Today we think of China as a land of death and drought, of famine and flood, but it was not always so. For hundreds of years, until about 1200 A. D., China was a land of plenty. The fertile plains of the Yellow River were plains of abundance then. Chinese farmers seized them, cut forests, and plowed up soil whose rich fertility had been centuries in the making. The land, the good earth that was China's, was stripped of its natural vegetative cover and exposed to the rains, which washed the topsoil away. When the land was exhausted the farmers moved on, and hundreds of millions more acres of China's topsoil were washed down to fill up the lower plains and to dump into the sea of yellow mud. The river of abundance became a river of sorrows, and the sea into which it flowed became the Yellow Sea because the deposits of yellow soil color it 75 miles out from the shore. In 1931 alone floods sweeping down the denuded hills, buried the farms of 25,000,000 people under an average of 9 feet of water. From 500,000 to 2,000,000 persons were drowned, the exact number being still uncertain.

The Chinese passed on to future generations the burden of paying for their extensive cultivation and exploitation of agricultural lands, and today's generations are paying the price. Our payments are on the way! \* \* \*

### *Old World Deserts.*

W. C. Lowdermilk, Soil Conservation Service, in *Man-Made Deserts*, reprint from *Pacific Affairs*, December 1935:

According to archaeologists, the Sahara, the Central Asian deserts, arid parts of Palestine, Mesopotamia, and the Gobi and North China were once teeming with human life. Traditions of peoples descended from ancient cultures tell of immigration to their present habitation from what are now desert regions of



Central Asia. The origin of European peoples was in the east. The Hindus came from the north, the Chinese from the west. Yet this land from which they came is today an immense desert where only very limited regions are still able to nourish a scanty population. Sir Aurel Stein's discoveries of sand-buried ruins in Central Asia revealed numerous towns a square mile or more in size, in a region now depopulated. There were ruins of cities, castles, aqueducts, reservoirs, and all the evidences of lost cultures, of vanished populations. Gibbon declared that 500 cities once flourished in what are now the dry depopulated plains of Asia Minor. The recently discovered ruin of Tepe Gawra in northern Mesopotamia is claimed to be the oldest remaining town in the world. The ruins show that in B. C. 3700 this was a well-planned city, which must have represented long ages of prior development. The peninsula of Arabia contained an enormous population, called Sealand, which at times annoyed Babylon from B. C. 2500 to 616. Now, a few fierce nomadic Bedouins, remnants of former cultures, fight for existence over every drop of water and every sign of vegetation. The great Sahara desert has recently revealed monuments, ruins of cities, temples, implements, and unearthed cut trees. Campalion, the famous Egyptologist, says of it, "and so the astonishing fact dawns upon us that this desert was once a region of groves and fountains and the abode of happy millions." The very gradual climatic changes due to the present age of retreating ice do not appear sufficient to account for the excessively rapid desiccation of the vast areas known to have sustained at one time enormous populations.

We have a written record of encroaching deserts. When Zenobia was overthrown by the Romans under Aurelian, its capital, Palmyra, was the metropolis of a mighty empire. Now the sands of the Sahara almost hide the ruins of that stupendous city of marble and gold. As late as the rise of Mohammed, Tripoli, on the north coast of Africa, had a population of 6,000,000. It was then clothed with vineyards, orchards, and forests. It is now bare of vegetation. The streams are dried up and the population reduced to about 45,000. Archaeologists now claim to have discovered, under shifting sands, the capital of the rich kingdom of the Queen of Sheba. Dr. Breasted, the flying archaeologist, attempted to take 12,000 feet of film over ancient ruins now being excavated. He encountered fierce and choking duststorms, making it necessary to rise to 12,000 feet in order to breathe clean air. These dust blizzards are an exhibition of wind erosion at work on denuded areas. Such duststorms occurred on a stupendous scale for the first time in the western United States in 1934 and 1935.

#### *Central America.*

W. C. Lowdermilk, Soil Conservation Service, in *Man-Made Deserts*, reprint from *Pacific Affairs*, December 1935:

Erosion is not confined to temperate zones, if man sets in motion soil-destroying forces. The great Mayan civilization, undoubtedly one of the highest of prehistoric America, was destroyed by erosion. Dr. C. Wythe Cooke, of the United States Geological Survey, declares that "The Maya civilization choked itself to death with mud washed from its own hillside corn patches. The Maya cities were built near small lakes which are now silted with sticky clay soil. These lakes were used for transportation. On the nearby hills, the farmers grew their corn. With continued cultivation of the slopes, the soils washed off; transportation on the lakes was made impossible and they were then forced to migrate as is recorded in history."

#### *Erosion in Modern Countries.*

W. C. Lowdermilk, Soil Conservation Service, in *Man-Made Deserts*, reprint from *Pacific Affairs*, December 1935:

A man-made desert is not as fantastic as it sounds. At least we may call deserts the regions of aridity and desolation where the recklessness, ignorance, and hunger drive of man have supplemented the forces of wind and water erosion in destroying vegetation and soils, resulting in regional suicide. Many nations are now awakening to the menace of the prodigal wastage of soil erosion. South Africa has thus lost the productivity of millions of acres. France, Greece, Spain, Australia, Madagascar, Italy, and the United States all show the destroying forces of erosion. In sharp contrast Germany and Japan particularly have provided for prevention and control of soil erosion and for the preservation of forest and grass resources.



*"Permanent" and "Temporary" Countries.*

Arthur J. Mason, in *Is Our Corn Soil Doomed?* published in the *Farm Journal* in 1927:

A whole school of agronomists points to Europe, an old country whose fertility is on the increase. Thus they allay the feeling of alarm at decreasing fertility in this country.

I would first point out that these men always quote northern Europe, a land of small annual rainfall in inches, but frequent rains, a land having ideal conditions for the creation and retention of soil, a land of clear streams.

Let those same men quote the south of France. There the loss of soil is the despair of its people; it has involved enormous expenditures to arrest, in any degree, and is the subject of a large literature.

Now, what is the difference between these two parts of France? They have about the same annual rainfall, allowing for bolder topography in the South. Merely this, as our young soldiers who were in France can testify—in the north it rains about 200 days in a year, in the south the fall more largely accompanies thunderstorms. Perhaps there are half as many days on which it rains, but the total rainfall in both cases is 20 to 30 inches.

The whole question of rainfall is a strange and interesting one, full of surprises. London and the Sacramento Valley of California have a not very different annual rainfall. London the ever wet, Sacramento Valley the almost always dry. In one case, frequent little rains all the year, coming on 200 days. In the other, all the rain coming in 3 months, on 65 days, and for 6 months parched, baked dustiness everywhere.

#### IV. HOW MUCH CAN SOIL CONSERVATION PROGRAMS HELP?

##### THE BEGINNING OF CONSERVATION

After more than a century of indifference with respect to all natural resources, public interest in conservation was first aroused by the decline of fisheries and forests. The office of Commissioner of Fish and Fisheries was established in 1871, and 2 years later a memorial of the American Association for the Advancement of Science started a movement which led ultimately to the establishment of the United States Forest Service. In 1886 there was created in the Department of Agriculture a Division of Economic Ornithology and Mammalogy, which later became the Bureau of Biological Survey. An act of Congress in 1891 empowered the President to proclaim public lands as national forests, and in 1899 the Soil Survey was begun.

These represent the beginnings of conservation in the United States; but the first real driving force back of the movement developed only 30 years ago. An act to protect the Alaskan fisheries was passed in 1906. The Inland Waterways Commission was established in 1907 and the National Conservation Commission in 1908.

Interest in mineral conservation also resulted in the creation in 1907 of the mining technology branch of the United States Geological Survey, which became the Bureau of Mines in 1910. At about the same time some of the unappropriated mineral lands in the public domain were withdrawn from settlement, and a decade later (1920) Congress passed the Mineral Leasing Act and the Federal Water Power Act.

At various intervals from 1904 to 1909, Theodore Roosevelt issued proclamations setting apart for national forests much of the unappropriated forest lands of the public domain. Later, under the Weeks law, in 1911, and the Clark-McNary law, in 1923, the Federal Government was authorized to acquire additional forest areas by



purchase. In setting up national forests, forest conservation was justified not only by prospective shortage of timber, but also by the beneficial effects of forestry upon water conservation, stream flow, and flood control.

*Public Now Is Aroused to Save the Soil.*

The soil is the last of the Nation's important natural resources to become the object of popular conservation interest. With recent duststorms in the West and floods in the East, the Nation is becoming increasingly conscious of the harmful effects of soil erosion. The usefulness of large dams constructed for irrigation and the development of electric power is threatened by silting. The choking of stream channels with silt is interfering with navigation, and excessively muddy water is not conducive to the preservation and propagation of game fish and other desirable forms of wildlife. Thus, the advocates of flood control and conservation of water, power, and wildlife find the control of soil erosion necessary for accomplishing their objectives; and soil conservationists find forestry an effective means for saving the soil.

Since the Michigan Land Economic Survey was started in 1922, a very few other States, notably Wisconsin and New York, have begun the development of land programs which deal definitely with forest wildlife conservation. But not until the last 2 or 3 years has public interest been thoroughly aroused concerning the need for conservation of the land itself. National agencies are now vigorously attacking the land-use problem in all of its ramifications. The Soil Erosion Service was established in the Department of the Interior in 1933, and in 1935 was transferred by Executive order to the Department of Agriculture as the Soil Conservation Service. Also, in the interest of soil conservation, the Taylor Grazing Act was enacted in 1934 to regulate grazing on a large part of the remaining public domain. Land conservation is one of the reasons for establishment of the Resettlement Administration. The latest development is the passage of the Soil Conservation and Domestic Allotment Act in 1936. (Bushrod W. Allin, A. A. A., Washington, D. C., in *Soil Conservation: Its Place in National Agricultural Policy*.)

It should be noted that extension services, particularly in the South, did pioneer work in terracing and contouring beginning about 1912. County agents, often without thanks, did much to arouse the farming and small-town public to the menace of erosion. State agricultural experiment stations, first in Missouri and next in Texas, began erosion studies in the 1920's. (With the exception of this paragraph, all materials in sec. IV are direct quotations from *Soil Conservation: Its Place in National Agricultural Policy*, by Bushrod W. Allin, A. A. A.)

#### THE SOIL CONSERVATION SERVICE

Due in large measure to the pioneering efforts of H. H. Bennett and others of the Soil Survey, the Soil Conservation Service was established in 1935 to: (1) Conduct "investigations into the character and extent of soil and water losses and for the development of measures and practices of soil and water conservation to provide for flood control and conservation of national land sources"; (2) engage in "conservation operations, involving the carrying out of proper land use and soil- and water-conservation practices on project-demonstra-



tion areas, and the application of such practices on extensive areas of publicly owned lands and in other designated work areas"; and (3) foster "the general application of soil-conservation practices through consultation services and educational and informational means."

This agency, therefore, is attacking the problem partly through the medium of education and research. Demonstration projects widely distributed throughout the United States involve 6,500,000 acres of privately owned land. The labor of 450,000 camps is being employed in other demonstrations covering 7,000,000 more acres, most of which is privately owned. In addition to the demonstration projects on private land, erosion-control activities are being carried out on three large areas of federally owned land representing a total of 39,000,000 acres. Such activities as the Soil Conservation Service is now engaged in representing the real beginning of a vast undertaking. Meanwhile, agricultural colleges and experiment stations continue research on all phases of soil management and the extension services continue to take the results to farmers. The work of the soil scientist is both scientific and impressive. (Bushrod W. Allin, A. A. A., Washington, D. C., in *Soil Conservation: Its Place in National Agricultural Policy*.)

#### THE AGRICULTURAL CONSERVATION PROGRAM OF A. A. A.

Conservation provisions of the present national agricultural program are linked inseparably with other broad objectives of immediate interest to the farmer. Among the declared purposes of the Soil Conservation and Domestic Allotment Act are: (1) To conserve soil resources, (2) to protect rivers and harbors against the results of soil erosion in aid of maintaining navigability and in aid of flood control, and (3) to *reestablish* and *maintain* the pre-war ratio between the per-capita purchasing power of farm and nonfarm *income*. In seeking these objectives, it is also declared that due regard shall be given to the maintenance of a continuous and stable supply of agricultural commodities adequate to meet consumer demand at prices *fair* to both producers and consumers. "Aiming at justice for agriculture and self-interest for the Nation, the plan seeks to salvage and conserve the greatest values in human life and resources with which this Nation is endowed", states President Roosevelt. (Bushrod W. Allin, A. A. A., Washington, D. C., in *Soil Conservation: Its Place in National Agricultural Policy*.)

#### *Not a Program of Production Control:*

The program has been condemned by some as a "subterfuge", as an attempt to nullify the Supreme Court's decision in the *Hoosac Mills case* by changing words rather than purposes, as an attempt only to continue the emergency-crop-control features of the Agricultural Adjustment Act. Nothing could be farther from the truth. Long before the Court's decision, farmers and their leaders were aware of the need for revising the emergency program to meet the requirements of a sound long-time program. And on October 25, 1935, more than 2 months before the decision, the President said concerning the Agricultural Adjustment Act that—

It never was the idea of the men who framed the act, of those in Congress who revised it, nor of Henry Wallace nor Chester Davis that the Agricultural Adjustment Administration should be either a mere emergency operation or a



static agency. It was their intention—as it is mine—to pass from the purely emergency phases necessitated by a grave national crisis to a long-time, more permanent plan for American agriculture.

He went on to say:

Such a long-time program is developing naturally out of the present adjustment efforts. As I see it, this program has two principal objectives: First, to carry out the declared policy of Congress to maintain and increase the gains thus far made, thereby avoiding the danger of a slump back into the conditions brought about by our national neglect of agriculture. Second, to broaden present adjustment operations so as to give farmers increasing incentives for conservation and efficient use of the Nation's soil resources.

#### THE PRICE OF NEGLECT

What of America's future? If erosion is allowed to run its course at its present rate wholesale abandonment of land will finally result. Eventually most of the uplands will be deserted by farmers. The Great Plains will become in fact what they were called originally—"The Great American Desert." Towns and cities will dwindle. Farming will be limited to the valley lands. There will be more sandstorms, more floods. Food will be higher priced. More and more of it will come from abroad. Fewer people will live on the farms; unemployment will increase. Farm buying power will sharply decrease, adding to the general distress.

These things can happen. It is by no means certain that they can be prevented. Only by arresting the destructive forces which our unnatural exploitation has unloosed, and by adjusting our land use in harmony with nature can we hope to succeed. Prompt and vigorous measures are demanded. The expense will not be light. Should the Nation share the cost, or ask 6 million financially distressed farm families to bear the load?

The long-time and more permanent adjustment program will provide positive incentives for soil conservation. The benefit payments can be made on a basis that will encourage individual farmers to adopt sound farm management, crop rotation, and soil-conservation methods. The crop insurance feature afforded by benefit payments will help farmers to maintain these beneficial systems of farming without interruption in poor crop years. Long-time adjustments can be adapted to natural soil advantages of regions and localities. Already the adjustment administration has under way local studies to help in working out farm programs on a county basis, so as to fit the best permanent use of the varying soil resources of the country up to that county's share of available domestic and foreign markets. Thus, plans are being worked out that should encourage widespread cooperation of farmers in a permanent national soil-maintenance program. (Bushrod W. Allin, A. A. A., Washington, D. C., in *Soil Conservation: Its Place in National Agricultural Policy*.)